

2562-022 PCT/US-1
Amendment dated 07/17/2008

10/541,538
Reply to office action mailed 05/16/2008

REMARKS

Claims 1-8 are currently pending in the application. By this amendment, claims 1, 3 and 4 are amended for the Examiner's consideration. The foregoing separate sheets marked as "Listing of Claims" show all the claims in the application, with an indication of the current status of each.

The Examiner's consideration in a telephone interview on June 6, 2008, is acknowledged with appreciation. In preparation for that interview the applicant submitted a draft amendment addressing the Examiner's concerns, as expressed in the office action mailed on May 16, 2008. The focus of the discussion was description in the claims of the main demolding direction, and it was agreed that language referencing the direction of ribs (15) would distinguish the Nozaki prior art. Further, the Examiner suggested, and it was agreed, to use a plane of the window pane rather than a plane of the window frame post (6) as being perpendicular to the demolding direction. Finally, it was agreed to move the proposed language so that it followed, and therefore served to define, the first reference to "the main demolding direction" in the body of the claim. The Examiner raised no objection to the remaining amendments addressing his other concerns, and indicated that upon submission of the amendment he would call the undersigned if any further changes were needed, but that an allowance was to be expected.

The foregoing amendment incorporates the results of the interview. For completeness of the record, the following remarks show how the amendments overcome the grounds of rejection stated in the outstanding office action.

Approval of the drawing correction filed August 22, 2007, is acknowledged with appreciation.

The Examiner's §112 rejections are believed to be resolved by the above amendments, as explained below. Further, these amendments clarify the use of "planes" that define the structure. In the interview on April 30, 2008, as recorded in

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the Examiner's Interview Summary, the Examiner had suggested using the lines 13 to define the planes. In fact, this was done. It will be observed that the moving cross-sectional view of "L-shapes", "mirror-L-shapes" and "interspaces" defines a three-dimensional space adequate to the descriptive needs of the present invention. The "separating plane (14)" running down the middle of the U-shaped guide (8) has no connection to the trapezoidal areas (– again, as viewed in cross-section, this time from above the U-shaped guide –), but the claims define a "separating surface" which is a topologically equivalent deformation of the separating plane, accommodating the alternating sections (9,10) which are viewed as "L-shapes" and "mirror-L-shapes" in moving cross-sectional view described in the claims.

These definitional conventions enable description of the structures of the invention in three-dimensional terms. However, in the prior submission, the relationship between the lines 13 and the corresponding planes containing the lines (as described in claims 3 and 4) was not explicit. This relationship has been made explicit by the foregoing amendments, building upon the cross-sectional view of "interspaces" already in the claims.

The Examiner rejects claims 1, 3, 4 and 8 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,305,125 to Nozaki et al. ("Nozaki") in view of German Patent Publication DE 199 42 650. The Examiner argues that "window frame unit 100" corresponds to the claimed one piece window frame unit, yet concedes that Nozaki is silent concerning "a window frame post." However, the window frame post (6) is an integral part of the one piece window frame unit.

The invention provides a one piece window frame unit. Under the prior art, the window frame element was the window frame post alone, to which a separately produced U-shaped rail was attached. An attempt at producing a U-shaped rail during the diecasting of the window frame element would require the use of a slide (an additional and separate molding piece) to preserve the intermediate space between the limbs of the U-shaped rail, because this space is an undercut as viewed in

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the main demolding direction (page 1, line 31, to page 2, line 8). Because this complication to the molding process is not economical, the U-shaped guide in the prior art is produced separately and then fastened to the window frame element.

The structure of the single piece window frame unit including the U-shaped guide in accordance with the present invention avoids the need for a slide, and therefore enables an economical single injection mold construction of the combined window frame unit and U-shaped guide. Instead of a prior art U-shape cross section, the mold pieces have a cross section of mirrored L-sections (page 2, lines 23-36). Further, there are provided interspaces between the alternating sections (9, 10) so that the mold can be constructed with alternating trapezoidal structures that fit together for the injection molding, and then are separated along the main demolding direction.

The invention that is the subject of the claims in the application is the single piece combination structure molded without slides, the demolding direction being perpendicular to the plane of the window pane that is guided by the U-shaped guide structure. The novelty of the invention derives from the observation that a U-shaped guide composed of these mirrored L-sections enables diecasting of the combination in a single piece.

Once this is understood, then it becomes clear that the references presented by the Examiner do not apply. In summary, the Nozaki reference shows a separate guide structure lacking an element clearly corresponding to the window frame post (6) of the present invention. The reason the Nozaki reference is inadequate is because Nozaki fails to suggest or describe a unique demolding direction for a structure corresponding to the window frame post (6). The simple rectangular bar (112) is a single structure, whereas correspondence to the present invention would require this bar to serve as two structures, one structure being the base of the U-shaped channel (8) and the other structure being the window frame post (6). It may reasonably be argued that the structure shown in Fig. 16 does not include a structure corresponding to window frame post (6). This interpretation is supported by the description in

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Nozaki that this bar (112) is a “resin base 112” (col. 1, lines 58-60) for the “sashes 103” whose function is to guide the window (col. 1, lines 26-33). There is no suggestion – even a contrary suggestion because of its resin rather than metal composition – that this resin structure could serve as a window frame post as described for the present invention.

Even if the resin bar (112) is considered to play a dual role and also serve as a window frame post structure, its teaching is at best ambiguous with respect to a demolding direction. Nozaki itself is consistent with the prior art teaching of a main demolding direction that is perpendicular to that of the present invention (as is evident by considering not only Fig. 16 but also Fig. 18A). The Examiner’s notation regarding the demolding direction shown in Fig. 16 is consistent with this prior art interpretation of a demolding direction perpendicular to that of the present invention.

In essence, the “frame unit 100” in Nozaki lacks the ribs (13) of the present invention, which uniquely determine a demolding direction. The Nozaki structure is inherently ambiguous with regard to a demolding direction. Consequently, it is of no help to add the DE ‘650 reference, whose teachings are consistent with the prior art approach of separate diecasting. Only by using the hindsight provided by the present invention can this ambiguity be resolved. Further, the “frame unit 100” also suggest a “plane” that is parallel (not perpendicular) to the demolding direction of the present invention, based on the relative dimensions of the width and thickness of the resin bar (112) structure as shown.

The claim amendments above add a limitation that defines the demolding direction in terms of the ribs (13), ribs which are clearly missing from Nozaki. The structure shown in Nozaki is thus distinguished, and it is submitted that absent improper hindsight there is no teaching, suggestion or motivation in Nozaki for a unique demolding direction wherein a combined single piece molded construction that includes both the window frame post (6) and the U-shaped guide (8) is enabled. Nor are there any ribs determinative of a unique demolding direction in the structures

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illustrated in German Patent Publication DE 199 42 650 (DE '650). Thus the combination of Nozaki and DE '650 fail to suggest the combined diecasting structure of the invention.

Further, the Yoshida reference does not address the significance of the ribs. It is not – as the Examiner's argument presumes – a question of “adding” ribs for some presumed purpose; rather, it is the existence of the ribs which uniquely defines a demolding direction for the window frame post (6). It will be observed that the Yoshida reference shows a guide composed of inner and outer wings establishing a continuous rail with the conventional U-shaped structure, not the L-sections of the present invention. The structure shown in Yoshida for mounting the sash to the door panel is shown in Fig. 4 as “door panel mounting portion 2” (col. 5, line 3). This structure is at the end of a lattice construction (13) that projects out from the sash in a direction perpendicular to the ribs of the present invention. It is fitted with a hole (16) for a nut (19), which permits mounting to the door panel. It is not at all clear that the structure could be molded, even with “slides,” much less that it defines a demolding direction.

In summary, nowhere in any combination of Nozaki, DE '650 and Yoshida is there teaching, suggestion and motivation for the combined diecasted structure of the present invention. Only in hindsight can these references be combined in a way to be compatible with the present invention. One skilled in the art would not see how to do so absent the present invention, for all the reasons stated above.

The further amendments to claim 1 resolve the Examiner's remaining objections and grounds for rejection under §112 by clarifying references to the “limbs” as part of the U-shaped structure, and clarifying the definition of “separating surface” in terms of these limbs and the “interspaces” between these limb sections. The additional clarity with regard to the three dimensional aspects of demolding are carried through to claims 3 and 4, thereby overcoming the Examiner's grounds of rejection.

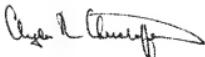
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In view of the foregoing, it is requested that the application be reconsidered, that claims 1-8 be allowed, and that the application be passed to issue.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at 703-787-9400 (fax: 703-787-7557; email: clyde@wcc-ip.com) to discuss any other changes deemed necessary in a telephonic or personal interview. Please charge any deficiencies in fees and credit any overpayment of fees to Attorney's Deposit Account No. 50-2041.

Respectfully submitted,



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